

## Increasing Triplet Subsequence [\(View\)](#)

Given an integer array `nums`, return `true` if there exists a triple of indices  $(i, j, k)$  such that  $i < j < k$  and  $nums[i] < nums[j] < nums[k]$ . If no such indices exists, return `false`.

### Example 1:

**Input:** `nums = [1,2,3,4,5]`

**Output:** `true`

**Explanation:** Any triplet where  $i < j < k$  is valid.

### Example 2:

**Input:** `nums = [5,4,3,2,1]`

**Output:** `false`

**Explanation:** No triplet exists.

### Example 3:

**Input:** `nums = [2,1,5,0,4,6]`

**Output:** `true`

**Explanation:** The triplet  $(3, 4, 5)$  is valid because  $nums[3] == 0 < nums[4] == 4 < nums[5] == 6$ .

### Constraints:

- $1 \leq nums.length \leq 5 * 10^5$
- $-2^{31} \leq nums[i] \leq 2^{31} - 1$

**Follow up:** Could you implement a solution that runs in  $O(n)$  time complexity and  $O(1)$  space complexity?